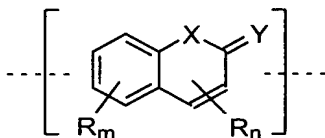


Patent Claims:

1. Conjugated polymers, oligomers and dendrimers comprising at least 1 mol% of units of the formula (1)



Formula (1)

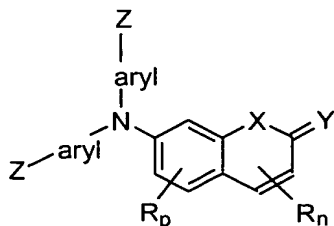
where the symbols and indices have the following meanings:

- X is on each occurrence, identically or differently, oxygen, sulfur, selenium or an N(R1) group;
- Y is on each occurrence, identically or differently, oxygen, sulfur or selenium;
- R is on each occurrence, identically or differently, a straight-chain, branched or cyclic alkyl or alkoxy chain having 1 to 22 C atoms, in which, in addition, one or more non-adjacent C atoms may be replaced by -C(R1)=C(R1)-, -C≡C-, -N(R1)-, -O-, -S-, -CO-O- or -O-CO-O- and in which one or more H atoms may be replaced by fluorine, an aryl, heteroaryl or aryloxy group having 5 to 40 C atoms, in which, in addition, one or more C atoms may be replaced by O, S or N and which may also be substituted by one or more non-aromatic radicals R and in which two or more of the radicals R may form an aliphatic or aromatic, mono- or polycyclic ring system with one another, or fluorine, chlorine, hydroxyl, CN, N(R1)₂, Si(R1)₃ or B(R1)₂;
- R1 is on each occurrence, identically or differently, H, a straight-chain, branched or cyclic alkyl chain having 1 to 22 C atoms, in which, in addition, one or more non-adjacent C atoms may be replaced by -O-, -S-, -CO-O- or -O-CO-O- and in which one or more H atoms may be replaced by fluorine, an aryl or heteroaryl group having 5 to 40 C atoms, in which, in addition, one or more C atoms may be replaced by O, S or N and which may also be substituted by one or more non-aromatic radicals R¹; a plurality of radicals R¹ or R¹ here may also form an aromatic or aliphatic, mono- or polycyclic ring system with further radicals R;
- m is on each occurrence, identically or differently, 0, 1, 2, 3 or 4, with the proviso that m cannot be 4 if a link to the polymer runs directly via the carbocyclic system, and with the further proviso that m cannot be 3 or 4 if both links to the polymer run directly via the carbocyclic system;
- n is on each occurrence, identically or differently, 0, 1 or 2, with the proviso that n cannot be 2 if a link to the polymer runs directly via the heterocyclic system, and with the further proviso that n = 0 if both links to the polymer run directly via the heterocyclic system;

with the exception of conjugated poly(phenyleneethynylenes).

2. Polymers according to Claim 1, characterised in that the units of the formula (1) are in conjugation with the polymer main chain.
3. Polymers according to Claim 1 and/or 2, characterised in that the units of the formula (1) are incorporated into the main chain of the polymer.
4. Polymers according to Claim 3, characterised in that the linking takes place in such a way that an even number of C atoms lies between the linking points.
5. Polymers according to Claim 1 and/or 2, characterised in that the units of the formula (1) are incorporated into the side chain of the polymer.
6. Polymers according to Claim 5, characterised in that the linking takes place via position 5, 6, 7 or 8.
7. Polymers according to Claim 5 and/or 6, characterised in that the linking to the main chain takes place via aromatic units, diarylamino units, triarylamino units, arylene-vinylene or aryleneethynylene units.
8. Polymers according to one or more of Claims 1 to 7, characterised in that they comprise further structural elements.
9. Polymers according to Claim 8, characterised in that the further structural elements are selected from the groups of the fluorenylenes, spirobifluorenylenes, dihydrophenanthrenylenes, indenofluorenylenes, tetrahydropyrenylenes, stilbenylenes, bisstyrylarylenes, 1,4-phenylenes, 1,4-naphthylenes, 1,4- or 9,10-anthrylenes, 1,6- or 2,7- or 4,9-pyrenylenes, 3,9- or 3,10-perylenylenes, 2,7- or 3,6-phenanthrenylenes, 4,4'-biphenylylenes, 4,4''-terphenylylenes or 4,4'-bi-1,1'-naphthylylenes.
10. Polymers according to Claim 8, characterised in that further structural elements are selected from the groups of the triarylaminos, triarylphosphines, benzidines, tetra-arylene-para-phenylenediamines, phenothiazines, phenoxazines, dihydrophenazines, thianthrenes, dibenzo-*p*-dioxins, phenoxathiynes, carbazoles, azulenes, thiophenes, pyrroles or furans.
11. Polymers according to Claim 8, characterised in that further structural elements are selected from the groups of the pyridines, pyrimidines, pyridazines, pyrazines, triarylboranes, oxadiazoles, quinolines, quinoxalines or phenazines.

12. Polymers according to one or more of Claims 8 to 11, characterised in that they comprise at least 50 mol% of units according to Claim 9 and 2 – 30 mol% of units according to Claim 10 and/or 11.
13. Polymers according to one or more of Claims 1 to 12, characterised in that the proportion of structural units of the formula (1) is 10 to 30 mol%.
14. Polymers according to one or more of Claims 1 to 13, characterised in that the following applies to units of the formula (1):
 - X is on each occurrence, identically or differently, oxygen, sulfur or an N(R1) group;
 - Y is on each occurrence, identically or differently, oxygen or sulfur;
 - m is on each occurrence, identically or differently, 0, 1, 2 or 3, with the proviso that m cannot be 3 if both links to the polymer run directly via the carbocyclic system;
 - the other symbols and indices are as defined under Claim 1.
15. Polymers according to Claim 14, characterised in that the following applies to units of the formula (1):
 - X is on each occurrence, identically or differently, oxygen or an N(R1) group;
 - Y is on each occurrence oxygen;
 - m is on each occurrence, identically or differently, 0, 1 or 2;
 - n is on each occurrence, identically or differently, 0 or 1;
 - the other symbols are as defined under Claim 1.
16. Polymers according to one or more of Claims 1 to 15, characterised in that the structures of the formula (1) are selected from the structures of the formulae (2) to (28), each of which is substituted by R or unsubstituted.
17. White-emitting conjugated polymers, characterised in that they comprise a proportion of 0.01 to 1 mol% of structural units of the formula (1).
18. Red-emitting conjugated polymers, characterised in that they comprise at least 1 mol% of structural units of the formula (1).
19. Blend of one or more polymers according to one or more of Claims 1 to 18 with any desired polymeric, oligomeric, dendritic or low-molecular-weight substances.
20. Bifunctional monomeric compounds of the formula (29)



Formula (29)

where Y, R, R₁ and n have the same meaning as described in Claim 1, and the other symbols and indices have the following meaning:

- X is on each occurrence, identically or differently, oxygen, sulfur or selenium;
- aryl is on each occurrence, identically or differently, an aromatic or heteroaromatic ring system having 2 to 40 C atoms, which may be substituted by R₁ or unsubstituted, or a stilbenyl, bisstilbenyl or tolanyl unit which is substituted by R₁ or unsubstituted; the possible substituents R₁ here may potentially be in any free position; a plurality of substituents R₁ here may form an aliphatic or aromatic, mono- or polycyclic ring system with one another or with further substituents R;
- Z is on each occurrence, identically or differently, a functional group which copolymerises under conditions of C-C linking;
- p is on each occurrence, identically or differently, 0, 1, 2 or 3.

21. Monomers according to Claim 20, characterised in that Z stands for Cl, Br, I, O-tosylate, O-triflate, O-SO₂R₁, B(OH)₂, B(OR₁)₂ or Sn(R₁)₃, where R₁ has the same meaning as under Claim 1.
22. Monomers according to Claim 20 and/or 21, characterised in that the C-C links are selected from the groups of the SUZUKI coupling, the YAMAMOTO coupling and the STILLE coupling.
23. Solutions and formulations comprising one or more polymers or blends according to one or more of Claims 1 to 19 according to the invention in one or more solvents.
24. Use of a polymer according to one or more of Claims 1 to 19 in an electronic component, preferably in an organic light-emitting diode (OLED).
25. Electronic component comprising one or more polymers according to one or more of Claims 1 to 19.
26. Electronic component according to Claim 25, characterised in that it is a field-effect transistor (O-FET), an organic thin-film transistor (O-TFT), an organic integrated circuit (O-IC), an organic solar cell (O-SC), an organic light-emitting diode (OLED) or an organic laser diode (O-laser).

27. Organic light-emitting diode according to Claim 26, characterised in that it comprises one or more layers comprising one or more polymers according to one or more of Claims 1 to 20.